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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,295	04/05/2007	Donald W. Kufe	GENU:006US/10717023	2459
32425 7590 03/25/2010 FULBRIGHT & JAWORSKI L.L.P. 600 CONGRESS AVE. SUITE 2400 AUSTIN, TX 78701				
EXAMINER				
MCGARRY, SEAN				
ART UNIT		PAPER NUMBER		
1635				
MAIL DATE		DELIVERY MODE		
03/25/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/598,295

Applicant(s)

KUFE ET AL.

Examiner

Sean R. McGarry

Art Unit

1635

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date 12/29/10
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Official Action is in response to the papers filed 12/23/09. Applicant has canceled claims 5-8 and added new claims 9 and 10. Claims 1-4, 9 and 10 are pending and under examination.

Applicant has submitted declarations by Donald Kufe that were filed in application 10/778,859. These declarations are not in proper form for consideration in the instant application. The declarations do not refer to this application and further do not identify that applicant has read and understood the Official Action mailed 6/23/09 in this application. The examiner has only considered those specific aspects presented in the arguments filed 12/23/09.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 and 8 **were** rejected under 35 U.S.C. 102(e) as being anticipated by Dobie [US 6,716,627, cited by applicant]. This rejection has been withdrawn in view of applicants amendments filed 2/23/09. Particularly the addition of the limitation "siRNA".

Claims 1-4, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Kufe et al [US 20040018181, cited by applicant]. This rejection has been revised to address the limitations added in the response filed 12/23/09.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Kufe et al have taught the use of antisense and siRNA targeted to MUC1 for the treatment of various cancers including colon cancer and breast cancer, for example. Kufe et al have also taught the use of chemotherapeutics and radiation in conjunction with siRNA treatments. Kufe et al have taught all of the methods steps required by the instant claims. It is the position of the examiner that all that is necessary to meet the limitations of the instant invention is the administration of a MUC1 siRNA, and a chemotherapeutic or radiotherapy, which are the only recited step in the instant claims.

Furthermore it is the inhibition of MUC1 that provides forth the enhancing of death receptor-induced apoptosis required by the instant claims.

It is noted that applicant has asserted that documents would be filed shortly to add Steven Weitman as an inventor in this application. No such papers have been filed to date.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dobie [US 6,716,627] in view of Tuschl et al [US 20041259247]. This rejection has been revised to address the limitations added in the response filed 12/23/09.

The invention is as clearly set forth in the claims.

Dobie et al have disclosed that it was known in the art to inhibit MUC-1 in cancer cells via antibodies and antisense compounds. Dobie has disclosed that antisense compounds can be used to treat various hyperproliferative diseases including cancer. It is noted colon cancer cells are identified as a MUC1 expressing cancer cells. Furthermore it is the inhibition of MUC1 that provides forth the enhancing of death receptor-induced apoptosis required by the instant claims. It is the position of the examiner that all that is necessary to meet the limitations of the instant invention is the administration of a MUC1 siRNA and and a chemotherapeutic or radiotherapy, which are the only recited steps in the instant claims. Dobie et al also have taught:

Brief Summary Text (139):

Certain embodiments of the invention provide pharmaceutical compositions containing (a) one or more antisense compounds and (b) one or more other chemotherapeutic agents which function by a non-antisense mechanism. Examples of such chemotherapeutic agents include but are not limited to daunorubicin, daunomycin, dactinomycin, doxorubicin, epirubicin, idarubicin, esorubicin, bleomycin, mafosfamide, ifosfamide, cytosine arabinoside, bis-chloroethylnitrosurea, busulfan, mitomycin C, actinomycin D, mithramycin, prednisone, hydroxyprogesterone, testosterone, tamoxifen, dacarbazine, procarbazine, hexamethylmelamine, pentamethylmelamine, mitoxantrone, amsacrine, chlorambucil, methylcyclohexylnitrosurea, nitrogen mustards, melphalan, cyclophosphamide, 6-mercaptopurine, 6-thioguanine, cytarabine, 5-azacytidine, hydroxyurea, deoxycoformycin, 4-hydroxyperoxycyclophosphoramide, 5-fluorouracil (5-FU), 5-fluorodeoxyuridine (5-FUdR), methotrexate (MTX), colchicine, taxol, vincristine, vinblastine, etoposide (VP-16), trimetrexate, irinotecan, topotecan, gemcitabine, teniposide, cisplatin and diethylstilbestrol (DES). See, generally, The Merck Manual of Diagnosis and Therapy, 15th Ed. 1987, pp. 1206-1228, Berkow et al., eds., Rahway, N.J. When used with the compounds of the invention, such chemotherapeutic agents may be used individually (e.g., 5-FU and oligonucleotide), sequentially (e.g., 5-FU and oligonucleotide for a period of time followed by MTX and oligonucleotide), or in combination with one or more other

such chemotherapeutic agents (e.g., 5-FU, MTX and oligonucleotide, or 5-FU, radiotherapy and oligonucleotide). Anti-inflammatory drugs, including but not limited to nonsteroidal anti-inflammatory drugs and corticosteroids, and antiviral drugs, including but not limited to ribivirin, vidarabine, acyclovir and ganciclovir, may also be combined in compositions of the invention. See, generally, The Merck Manual of Diagnosis and Therapy, 15th Ed., Berkow et al., eds., 1987, Rahway, N.J., pages 2499-2506 and 46-49, respectively). Other non-antisense chemotherapeutic agents are also within the scope of this invention. Two or more combined compounds may be used together or sequentially.

Dobie does not teach the use of siRNA

Tuschl et al have taught that siRNA compounds are safer and more effective than prior art inhibitors such as antisense compounds (see paragraphs 8 and 148 for example). Tuschl et al have taught that siRNA can be easily designed to inhibit any gene of a known sequence and can be used in the treatment of disease such as cancer.(see paragraphs 28-33, for example)The prior art has already taught to use inhibitors such as antisense to inhibit MUC1 for the treatment of hyperproliferative disease such as cancer. One in the art would surely turn to compounds that have been shown to be more safe and more effective for the treatment of such conditions.

The invention as a whole would therefore have been prima facie obvious to one in the art at the time the invention was made.

Applicant argument submitted 12/23/09 have been considered, but they are not persuasive, Applicant argues that there is no motivation to utilize siRNA compounds in place of antisense compounds since there is no guarantee that it will work. It is noted that a motivation is not required to be linked with a guarantee. A motivation is linked with a reasonable expectation of success. It is the examiners position that the teachings

of Tuschl provide a reasonable expectation of success since there is no reason to believe that the teachings of Tuschl would not result in inhibition of a gene target when following their teachings. Applicant asserts that the compounds of Tuschl et al were not demonstrated in mammalian cells, but provide no evidence or reasoning to support an assertion that they would not be expected to work in mammalian cells. Applicant relies on 10/447,839 for teaching of siRNA compounds. The compounds exemplified therein are consistent with the teaching of Tuschl et al, for example. Applicant argues that antisense and siRNA function by different mechanisms. This is not contested, but such argumentation is not on point. The result of inhibition via antisense is inhibition of gene expression in a sequence specific manner. The result of siRNA inhibition is gene expression inhibition in a sequence specific manner where Tuschl et al teach that the siRNA inhibition is superior to antisense inhibition. The fact that the inhibition is by a different mechanism provides no support for a lack of likelihood of success. Applicant argues that there would be no motivation to for a chemist to modify an antisense compound taught by Dobie et al into a siRNA compound. This too is not on point since a chemist is not modifying an antisense compound. An artisan apprised of the teachings of Dobie et al and Tuschl et al would substitute the siRNA compounds of Tuschl for the compounds taught by Dobie et al where Tuschl et al teach that such compound provide for enhanced specificity and work at lower concentrations than antisense compounds where the result of both antisense and siRNA inhibition is the inhibition of expression of a target gene. Applicant's arguments that siRNA compounds targeted to the same targets of antisense compounds have a "low" correlation is also not on point. Tuschl does not

teach to make siRNA compounds based on known antisense targets, but provides ample teaching on the design of siRNA compounds for a target mRNA. The invention amounts to the substitution of a known compound of superior properties in a known method. Applicant has not, for example invented siRNA and has not invented a method of inhibiting MUC-1 in the treatment of cancer.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean R. McGarry whose telephone number is (571) 272-0761. The examiner can normally be reached on M-Th (6:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fereydown Sajjadi can be reached on (571) 272-3311. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner
Art Unit 1635

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